

***Abstract of the Invention***

Method and apparatus for tracking, recording and distributing link state characteristics over communications networks. The invention allows network operators to efficiently define, track, store and disseminate link state characteristics using a bit-field-encoded resource record that is capable of representing many more link state characteristics than the bit-mask-encoded records used in existing systems. As a result, the present invention, when used in conjunction with standard routing and network maintenance algorithms, provides a much more efficient method than existing systems provide, for performing sophisticated networking tasks, such as handling complicated information transmission requests, setting up and tearing down network paths, and making dynamic routing decisions.